REMARKS

Claims 1-7 are presently pending in the captioned application with no claim amendments being made.

The Examiner has withdrawn the previous indefinitness rejection of claim 7 and the previous obviousness rejections of claims 1-7 provided in items 5-8 of the Office Action mailed on September 16, 2003. However, the Examiner now cites new references, U.S. Patent 5,711,994 ("Powers"), U.S. Patent 5,658,848 ("Abe et al.") and U.S. Patent 5,294,444 ("Nakamura et al.") in the outstanding Office Action.

Applicants note that the newly cited references are non-analogous art. The Powers, Abe et al. and Nakamura et al. references relate to non-woven fabrics, films for recording images and cosmetics, respectively. Although they teach a particular type of phosphate used as an anti-static agent, the disclosed phosphate is completely different from the presently claimed phosphates having C_{8-50} hydrocarbon chain of the present invention.

Moreover, the references are not pertinent to the particular problems of providing (1) a material containing a minimum of alcohol or water to minimize the inhibition of polyurethane formation, (2) antistatic agents (including phosphates) having a

minimum of inorganic salts and (3) an antistatic polyurethane elastic fiber having sufficient tenacity and elongation.

Clearly, disclosures related to cosmetics, non-woven fabrics, and films for recording images are non-analogous to the present invention and are devoid of any teachings that would have provided any suggestion or motivation to one of ordinary skill in the art to make the presently claimed antistatic elastic fiber.

Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejections and allow all claims pending in this application.

1. Rejection of Claims 1-3 and 6 under 35 U.S.C. § 103(a)

The Office Action rejects claims 1-3 and 6 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,600,743 ("Shizuki et al.") in view of U.S. Patent No. 5,711,994 ("Powers") (or U.S. Patent No. 5,658,848 ("Abe et al.")) further in view of U.S. Patent No. 5,294,444 ("Nakamura et al."). The Office Action states:

> Shizuki discloses an antistatic fiber obtained from a thermoplastic polymer containing polyoxyalkylene glycol or its derivative in an amount of not less than 0.5% by wt. (abstract). Suitable glycols are listed in column 5, line 33 to column 6, line 24, one of

them being copolymer of polytetramethylene glycol (column 5, lines 40-41).

Shizuki fails to disclose the claimed phosphate salt.

Powers describes treated non-woven fabrics. An alkyl phosphate salt is used as an antistatic agent (col. 9, line 15; col. 10, line 24). Abe discloses a composition of a paint in which triethanolamine dioctylphosphate is used as an antistatic agent (col. 6, line 35).

Nakamura discloses a composition in which certain sulfates and phosphates are used as anionic surfactants. The phosphates in col. 3, lines 30-42 read on those that are claimed in instant claim 1. It is known that surfactants act also as antistatic agents.

Therefore it would have been obvious to include in the fiber forming composition of Shizuki, the phosphate/s taught by Nakamura to enhance antistatic property because phosphates (as shown by Powers and Abe) impart antistatic property.

Applicants respectfully traverse the rejection because a *prima facie* case of obviousness has not been established. As noted in Applicants' previous Response, Shizuki et al. in addition to failing to teach the presently claimed phosphate, also fails to teach an enabling starting material for producing polyurethane elastic fiber other than organic isocayanate. In particular, the polyoxyalkylene glycol (POG) disclosed by Shizuki et al. produces polyurethane that fails to produce a fiber having the elongation

and elastic recovery properties of the presently claimed elastic fiber. Moreover, Applicants note that all of the newly cited references fail to teach the limitation of phosphates having C_{8-50} hydrocarbon chain. The references fail to provide any suggestion or motivation to make phosphates having C_{8-50} hydrocarbon chain. he newly cited references are also non-analogous art.

Turning to the rule, the Federal Circuit held that a *prima facie* case of obviousness must establish: (1) some suggestion or motivation to modify the references; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest **all** the claimed limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

In the present application, the material for producing antistatic polyurethane elastic fiber is a mixture of

(i) 5 to 95 parts by weight of at least one salt selected from the group consisting of sulfonates having C_{8-30} hydrocarbon chain, sulfates having C_{8-30} hydrocarbon chain and phosphates having C_{8-50} hydrocarbon chain, and

(ii) 95 to 5 parts by weight of a starting material for producing polyurethane elastic fiber other than organic isocyanate.

However, Shizuki et al. fails to teach phosphates having C_{8-50} hydrocarbon chain of the claimed invention. The newly cited Powers, Abe et al. and Nakamura et al. references also fail to teach the presently claimed phosphates having C_{8-50} hydrocarbon chain.

Turning first to the Shizuki et al. reference, Applicants note that Shizuki et al. teaches a non-enabling component. The polyoxyalkylene glycol (POG) used to produce an antistatic fiber in Shizuki et al. cannot produce an antistatic **elastic** fiber as is presently claimed. In particular, the sulfonates disclosed by Shizuki et al. do not have a C_{8-30} hydrocarbon chain and are very different from the sulfonates of the present invention. Although the POG disclosed by Shizuki et al. is contemplated within the scope of the presently claimed component (ii) of the present invention, a fiber produced from polyurethane, which in turn is produced from POG, does not have the requisite elongation and elastic recovery properties for a polyurethane elastic fiber. Therefore, fibers produced from polyurethane, which in turn are produced from POG cannot be used as elastic fibers.

It is also noted that the sulfonates of Shizuki et al. cannot be mixed together with polyoxyalkylene glycol (POG) or its derivative as is done in the present invention because the

sulfonates taught by Shizuki et al. are used to form the recurring units of polyester used as a fiber-forming thermoplastic polymer. See Shizuki et al. at col. 4, line 55 to col. 6, line 12.

Shizuki et al. clearly fails to teach an enabling component of 95 to 5 parts by weight of a starting material for producing polyurethane elastic fiber other than organic isocyanate because the reference only discloses polyoxyalkylene glycol (POG). Shizuki et al. also fails to teach phosphates having a C_{8-50} hydrocarbon chain.

Turning to the newly cited Powers, Abe et al. and Nakamura et al. references, Applicants note again that all the references fail to teach the presently claimed phosphates having C_{8-50} hydrocarbon chain. The references also fail to provide any motivation or suggestion to one of ordinary skill in the art to make phosphates having C_{8-50} a hydrocarbon chain for use in an elastic fiber.

Although Powers, Abe et al. and Nakamura et al. generally teach phosphates as anti-static agents, the newly cited references are non-analogous art within the fields of non-woven fabrics, films for recording images and cosmetics, respectively. In re Oetiker, 1446, 24 U.S.P.Q.2d 1443, 1445 (Fed. Cir. 1992). Clearly, the references are not pertinent to the particular problems of providing (1) a material containing a minimum of alcohol or water

to minimize the inhibition of polyurethane formation, (2) antistatic agents (including phosphates) having a minimum of inorganic salts and (3) an antistatic polyurethane elastic fiber having sufficient tenacity and elongation.

Turning to Powers, the reference relates to non-woven fabrics treated with an alkyl phosphate salt antistatic agent. Although an alkyl phosphate salt is disclosed as an antistatic agent, Powers merely discloses that non-woven fabrics comprising polypropylene polymer are treated with the above antistatic agent. See Table 1, Example 4, col. 9, line 15 and claims 1, 3 and 5. Powers fails to teach polyurethanes or the presently claimed phosphate having a C_{8-50} hydrocarbon chain.

As already noted above, phosphates having hydrocarbon chain other than those presently claimed and cannot be used because they deteriorate the polyurethane elastic fiber. Powers fails to disclose the presently claimed phosphates and fails to provide any suggestion or motivation to make phosphates having a C_{8-50} hydrocarbon chain suitable as an antistatic agent for a polyurethane elastic fiber.

Abe et al. discloses a paint in which triethanolaminedioctylphosphate is used as an antistatic agent. Again, Abe et al. fails to disclose the presently claimed

phosphates and fails to provide any suggestion or motivation to make phosphates having a C_{8-50} hydrocarbon chain suitable as an antistatic agent for a polyurethane elastic fiber.

Nakamura et al. which relates to a cosmetic composition containing a non-ionic surfactant and an ionic surfactant, similarly fails to disclose the presently claimed phosphates and fails to provide any suggestion or motivation to make phosphates having a C_{8-50} hydrocarbon chain suitable as an antistatic agent for a polyurethane elastic fiber. See Nakamura et al. at col. 2, lines 9-18.

Based on the non-analogous nature of the newly cited references as well as the lack of any relevant teachings for phosphates having a C_{8-50} hydrocarbon chain suitable as an antistatic agent for a polyurethane elastic fibers, one of ordinary skill in the art simply would not have had any motivation or suggestion to combine the references to arrive at the presently claimed invention.

Accordingly, Applicants respectfully submit that the presently claimed invention is unobvious over the cited references and respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 103.

2. **Rejection of Claim 4 under 35 U.S.C. § 103(a)**

The Office Action rejects claim 4 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,600,743 ("Shizuki et al.") in view of U.S. Patent No. 5,711,994 ("Powers") (or U.S. Patent No. 5,658,848 ("Abe et al.")) further in view of U.S. Patent No. 5,294,444 ("Nakamura et al.") as applied to claim 1 above, and further in view of U.S. Patent No. 3,775,213 ("Dunay"). The Office Action states:

> Shizuki (together with three references) does not mention spinning solvent (of instant claim 4).
>
> Dunay discloses production of insulative material from poly benzimidazole fiber using N,N-dimethyl formamide or N,N-dimethylacetamide as preferred solvents (column 4, lines 16-17).
>
> It would have been obvious to use solvents of Dunay in the preparation of fiber of Shizuki as the preferred solvents.

Applicants respectfully traverse the rejection because a *prima facie* case of obviousness has not been established over the independent claim 1. Therefore, the rejection of the dependent claim 4 is similarly traversed over the arguments as provided supra because all the limitations of the independent claim 1 are incorporated in the dependent claim 4.

Accordingly, Applicants respectfully submit that the presently claimed invention is unobvious over the cited references and respectfully request reconsideration and withdrawal of the rejection of claim 4 under 35 U.S.C. § 103.

3. **Rejection of Claim 5 under 35 U.S.C. § 103(a)**

The Office Action rejects claim 5 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,600,743 ("Shizuki et al.") in view of U.S. Patent No. 5,711,994 ("Powers") (or U.S. Patent No. 5,658,848 ("Abe et al.")) further in view of U.S. Patent No. 5,294,444 ("Nakamura et al.") as applied to claim 1 above, and further in view of U.S. Patent No. 5,954,062 ("Murata"). The Office Action states:

> Prior art fails to mention the lubricant (of claim 5).
>
> Murata discloses artificial hair and its preparation wherein an amino-modified silicone lubricant is used (column 6, lines 6-8).
>
> Therefore, it would have been obvious to use the lubricant of Murata for the fiber of Shizuki in order to prevent fusion and intermixing of fibers.

Applicants respectfully traverse the rejection because a *prima facie* case of obviousness has not been established over the

independent claim 1. Therefore, the rejection of the dependent claim 5 is similarly traversed over the arguments as provided supra because all the limitations of the independent claim 1 are incorporated in the dependent claim 5.

Accordingly, Applicants respectfully submit that the presently claimed invention is unobvious over the cited references and respectfully request reconsideration and withdrawal of the rejection of claim 5 under 35 U.S.C. § 103.

4. Rejection of Claim 7 under 35 U.S.C. §103(a)

The Office Action rejects claim 7 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,800,920 ("Umezawa et al.") in view of U.S. Patent No. 5,711,994 ("Powers") (or U.S. Patent No. 5,658,848 ("Abe et al.")) and U.S. Patent No. 5,294,444 ("Nakamura et al."). The Office Action states:

> Umazawa discloses polyurethane fiber which contains many useful additives, one of them being antistatic agent/s (column 7, line 64).
>
> It would have been obvious to use the phosphates as the preferred antistatic agent for the fiber of Umezawa to enhance its antistatic property.

Applicants respectfully traverse the rejection because a *prima*

facie case of obviousness has not been established over the independent claim 7 for the same reasons as provided supra over the rejection of claim 1. In particular, Shizuki et al. in addition to failing to teach the presently claimed phosphate, also fails to teach an enabling starting material for producing polyurethane elastic fiber other than organic isocayanate. The polyoxyalkylene glycol (POG) disclosed by Shizuki et al. produces polyurethane, which although being encompassed within the limitation of a starting material for producing polyurethane elastic fiber other than organic isocayanate, fails to produce a fiber having the elongation and elastic recovery properties of the presently claimed **elastic** fiber.

Moreover, Applicants note that all of the newly cited references fail to teach the limitation of phosphates having C_{8-50} hydrocarbon chain. The references fail to provide any suggestion or motivation to make phosphates having C_{8-50} hydrocarbon chain. Applicants further note that the newly cited references are non-analogous art.

Although Umezawa et al. very generally states that "anti-static agents and the like" can be contained within the polyurethane fibers, Umezawa et al. is nevertheless completely silent as to what those antistatic agents may be. Furthermore,

Shizuki et al. and Arai et al. fail to disclose that antistatic properties can be provided to a polyurethane fiber by containing a sulfonate as specified in claim 7 in the polyurethane fiber without deteriorating the polyurethane fiber where the tenacity is 1 g/de or more and the elongation is 400% or more as claimed in claim 7.

Since the specifically claimed limitations of claim 7 are not taught and since there is no motivation or suggestion within any of the references to combine them to arrive at the presently claimed invention, a *prima facie* case of obviousness is not present over claim 7.

Accordingly, Applicants respectfully submit that the presently claimed invention is unobvious over the cited references and respectfully request reconsideration and withdrawal of the rejection of claim 7 under 35 U.S.C. § 103.

CONCLUSION

In light of the foregoing, Applicants submit that the application is now in condition for allowance. The Examiner is therefore respectfully requested to reconsider and withdraw the rejection of the pending claims and allow the pending claims. Favorable action with an early allowance of the claims pending is

earnestly solicited.

Respectfully submitted,

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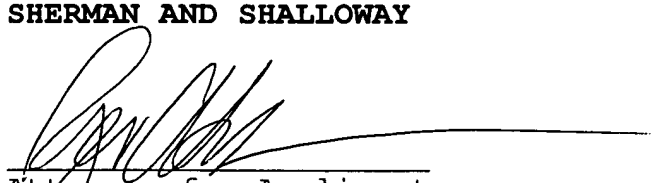

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